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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/519,947

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Mariette Andersson

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EXAMINER

KRUSE, DAVID H

ART UNIT

PAPER NUMBER

1638

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/12/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/519,947

Applicant(s)

ANDERSSON ET AL.

Examiner

David H. Kruse

Art Unit

1638

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/29/2004</u> . | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Specification***

1. This application contains sequence disclosures at page 17, lines 43 and 44, that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR § 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR §§ 1.821 through 1.825.

Failure to comply with these requirements will be considered non-responsive to this Office action.

### ***Information Disclosure Statement***

2. The listing of references in the specification at pages 23 and 24 is not a proper information disclosure statement. 37 CFR § 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

3. The IDS filed on 29 December 2004 has been considered, a signed copy is attached hereto.

### ***Claim Objections***

4. Claim 13 is objected to because of the following informalities: the second reference to "claim 1" at line 3 is objected to because claim 1 is directed to a method and not to a plant expression vector. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3-6, 8, 9, 13, 14 and 19 are rejected under 35 U.S.C. § 102(b) as being anticipated by Bedbrook *et al* (U.S. Patent 5,414,870).

Bedbrook *et al* disclose transforming plant cells with a vector comprising a nucleic acid fragment encoding an *Arabidopsis thaliana* AHAS promoter, coding region and terminator region (see figure 10) and selecting transformed cells resistant to an imidazolinone herbicide and regeneration of a transformed plant at columns 28-29. The disclosed nucleic acid fragment would hybridize to a complementary strand of the sequence of Applicants' SEQ ID NO: 1, and discloses an analogue or fragment of Applicants' SEQ ID NO: 1. Bedbrook *et al* discloses that the vector can also comprise a nucleic acid that encodes a gene of interest conferring some agronomically useful trait, which would inherently encode proteins and peptides at column 29, lines 1-5. Bedbrook *et al* disclose that the use of potato is encompassed by the disclosed method of using said nucleic acid fragment at column 28, lines 20-31.

***Claim Rejections - 35 USC § 102/103***

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1-9 and 13-19 are rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Sathasivan *et al* (U.S. Patent 5,767,366).

Sathasivan *et al* disclose a vector comprising a DNA sequence encoding an *Arabidopsis thaliana* AHAS protein having an asparagine to serine mutation at amino acid 653, said AHAS protein being tolerant to imidazolinone herbicides (see claim 1 and column 7, 2<sup>nd</sup> paragraph). Sathasivan *et al* disclose a 5.8 kb DNA fragment that appears to have the sequence of Applicants' SEQ ID NO: 1, said fragment being of the same size and acknowledged by Applicants' as being used in the instant invention at page 11, 2<sup>nd</sup> paragraph of the instant specification. Sathasivan *et al* disclose transforming tobacco cells with said vector, selecting transformed cells with different concentrations of imazapyr, and regenerating transformed, imazapyr resistant whole plants (columns 13-14). The 5.8 kb DNA fragment disclosed by Sathasivan *et al* comprises the homologous promoter and termination regions. Sathasivan *et al* disclose transforming potatoes with said vector at column 9, line 4, hence inherently disclose potato plant cells, plants and harvest products comprising said DNA sequence. Sathasivan *et al* do not disclose using imazamox (instant claim 7) in the selection process, but imazamox would have been an obvious analogue of the imazapyr used by Sathasivan *et al* at column 14, 1<sup>st</sup> paragraph.

***Claim Rejections - 35 USC § 103***

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9. Claims 1-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sathasivan *et al* (U.S. Patent 5,767,366) in view of Edwards *et al* (WO 99/06575).

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. § 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This rejection is made because it is unclear from the teachings of Sathasivan *et al*, if the 5.8 kb DNA fragment taught and used by Sathasivan *et al* comprises the DNA sequence of SEQ ID NO: 1.

Sathasivan *et al* teach a vector comprising a DNA sequence encoding an *Arabidopsis thaliana* AHAS protein having an asparagine to serine mutation at amino acid 653, said AHAS protein being tolerant to imidazolinone herbicides (see claim 1 and column 7, 2<sup>nd</sup> paragraph). Sathasivan *et al* teach a 5.8 kb DNA fragment that appears to have the sequence of Applicants' SEQ ID NO: 1, said fragment being of the same size and acknowledged by Applicants' as being used in the instant invention at page 11, 2<sup>nd</sup> paragraph of the instant specification. Sathasivan *et al* teach transforming tobacco cells with said vector, selecting transformed cells with different concentrations of imazapyr, and regenerating transformed, imazapyr resistant whole plants (columns 13-14). The 5.8 kb DNA fragment taught by Sathasivan *et al* comprises the homologous promoter and termination regions. Sathasivan *et al* teach transforming potatoes with said vector

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at column 9, line 4, hence inherently disclose potato plant cells, plants and harvest products comprising said DNA sequence. Sathasivan *et al* do not teach using imazamox (instant claim 7) in the selection process, but imazamox would have been an obvious analogue of the imazapyr used by Sathasivan *et al* at column 14, 1<sup>st</sup> paragraph.

Sathasivan *et al* do not teach a heterologous DNA sequence encoding an antisense RNA or a DNA that contains information that causes changes in the carbohydrate concentration and carbohydrate composition of regenerated potato plants.

Edwards *et al* teach transforming a potato plant with a sense or antisense construct of an isoamylase coding region wherein expression of the antisense construct to increase the production of amylopectin type starches, or overexpression of the sense construct to increase the production of amylose type starches (see page 10).

Expression of transgenes, including herbicide resistance transgenes, in *Solanaceae* plants such as tobacco and potato was routine in the instant art at the time of Applicants' invention. Sathasivan *et al* using tobacco demonstrate that one of ordinary skill in the instant art would have had a reasonable expectation of success in using imidazolinone resistance produced by a mutant AHAS enzyme encoding transgene to select for transformed potato plants. Edwards *et al* teach that those of ordinary skill in the art would have been motivated to combine a selection marker with a sense or antisense construct of the potato isoamylase transgene to modify amylopectin or amylose type starches. Edwards *et al* teach using selectable genetic markers to resistance to imidazolinones at page 21, 2<sup>nd</sup> paragraph.

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**Conclusion**

10. No claims are allowed.
11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David H. Kruse, Ph.D. whose telephone number is (571) 272-0799. The examiner can normally be reached on Monday to Friday from 8:00 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached at (571) 272-0975. The central FAX number for official correspondence is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group Receptionist whose telephone number is (571) 272-1600.

DAVID H. KRUSE, PH.D.  
PRIMARY EXAMINER



David H. Kruse, Ph.D.  
31 January 2007

12. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

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